

# Bereskin & Parr

INTELLECTUAL PROPERTY LAW

Appl. No : 09/621,234 Confirmation No.: 3325  
Applicant : HENSHAW et al.  
Filed : July 20, 2000  
Title : VERTICAL CYLINDRICAL SKEIN OF HOLLOW FIBER  
MEMBRANES AND METHOD OF MAINTAINING CLEAN FIBER  
SURFACES  
TC./A.U. : 1723  
Examiner : FORTUNA, Ana M.  
Docket No. : 4320-241  
Customer No. : 001059

Board of Patent Appeals and Interferences  
United States Patent and Trademark Office  
P. O. Box 1450  
Alexandria, Virginia 22313-1450

June 25, 2007

## RESPONSE TO NOTIFICATION OF DEFICIENCIES IN APPEAL

This is in Response to a telephone call from Examiner Fortuna requesting that Applicants file a revised "Summary of Claimed Subject Matter" to correct deficiencies noted in said summary in the Appeal Brief as filed April 3, 2006. The deficiencies are set out in an Order Returning Undocketed Appeal to Examiner mailed by the BPAI on May 17, 2007.

Attached is a Revised Summary of Claimed Subject Matter to satisfy the requirements of 37 CFR 41.37(c)(1)(v).

Applicants also note that the BPAI requested clarification regarding the Examiner's consideration of foreign reference WO94/11094, as listed in Applicants' IDS filed July 1, 2004. A copy of Applicants' IDS as appended to the Examiner's Communication mailed November 23, 2004, showing on page 2 of 2 the absence of the Examiner's initials beside this reference, is included for the Examiner's convenience in identifying this deficiency.


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Should the Examiner require any further information in preparing the case for resubmission to the BPAI, Applicants request that the Examiner call the undersigned at 416-957-1654.

Respectfully submitted,

HENSHAW et al.

By   
James A. Raakman  
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**Summary of the Claimed Subject Matter (Revised)**

All references in the following paragraphs apply to either the application as filed or to Patent No. 5,783,083, a copy of which is attached in the Evidence Appendix.

The appealed claims relate to a hollow fiber membrane filtration system used to filter or separate a permeate from a liquid substrate having particulate matter therein (column 5, line 58 to column 6, line 6).

An example of such a system is shown in Figures 11 and 12 and described at column 17, line 24 to column 18, line 7. In particular, the system has a non-pressurized reservoir 90 (also called tank 90 in this example) for containing the substrate. An assembly having a plurality of hollow fiber membranes is immersed in the substrate. One example of an assembly is skein 80, having fibers 12 and upper and lower end caps 81, 82 (see also Fig. 8, and col. 15, lines 40-46). Another example of a membrane assembly is skein 10, with upper and lower end caps 21, 22, hollow fiber membranes 12 (which may be called "membranes" or "fibers" for brevity), and upper and lower solid bodies 23, 24 (also called headers 23, 24 in this example) with corresponding ends of the fibers fixed therein (see Fig. 2, and col. 11, lines 25-59).

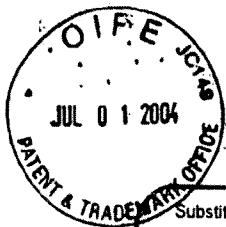
The membranes are sealingly secured in the solid bodies so as to prevent solids in the substrate from contaminating the permeate (column 7, lines 35-40). The solid bodies are comprised of a potting material, and at least a portion of the membranes are spaced apart by the potting material to a center to center distance in the range of 1.2 to 5 times the outside diameter of the membranes (column 7, lines 28-31). With such a spacing, the membranes do not touch each other but rather are spaced apart by the potting material between them (Column 11, lines 43-47).

The system includes a "permeate collection means" in fluid communication with the lumens of the hollow fiber hollow fiber membranes. The permeate collection means comprises, in one example, structure corresponding to an upper permeate collection

zone 28 provided in the upper end cap 21 (Fig. 2; col. 11, lines 26-29; col. 12, lines 41-44). The permeate collection means can further comprise a lower permeate collection zone 29 in the lower end cap 22, and/or a permeate withdrawal manifold (col. 11, line 32). In other examples the permeate collection means comprises ring 20 (Fig. 5; col. 13, lines 55-56), stainless steel permeate pan 61 (Fig. 6; col. 14, lines 50-52), upper end cap 81, and/or lower end cap 82 (Fig. 8).

A pump (column 17, lines 62-66) applies a suction to the lumens of the hollow fiber membranes to draw a component of the substrate (the permeate) through the membranes while leaving particulate matter in the substrate (column 17, lines 51-54).

An aeration means discharges air into the substrate to provide a column of bubbles rising from near lower ends of the membranes (Column 8, lines 61-63). The "aeration means" comprises, in one example, structure corresponding to an air feed tube 44 in communication with passages (defined by arms 41) having discharge openings 43 therealong (Fig. 3; Fig. 3A; col. 12 lines 5-9). Other examples of aeration means comprise structure corresponding to air supply tube 86 and discharge outlets 104 (Fig. 8; col. 15 line 40-col. 16 line 36), and/or air manifold 145 (Fig. 11, col. 17 lines 52-61).



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## INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(use as many sheets as necessary)

Sheet 1 of 2

**Complete if Known**

Application Number	09/621,234
Filing Date	July 20, 2000
First Named Inventor	HENSHAW
Group Art Unit	1723
Examiner Name	FORTUNA, Ana M.
Attorney Docket Number	4320-241

### U.S. PATENT DOCUMENTS

Examiner Initials *	Cite No. 1	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number - Kind Code 2 (if known)			
AF		US - 6,555,005	04-29-2003	Zha et al.	
		US - 5,141,031	08-25-1992	Baurmeister	
		US - 5,484,528	01-16-1996	Yagie et al.	
		US - 3,730,959	05-01-1973	Horres	
		US - 4,540,490	9/ /1985	Shibata et al.	
		US - 5,910,250	06/ /1999	Mahendran et al.	
HP		US - 3,704,223	11/28/1972	Dietzsch et al.	

### FOREIGN PATENT DOCUMENTS

Examiner Initials *	Cite No. 1	Foreign Patent Document	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T 6
		Country Code 3 - Number 4 - Kind Code 5 (if known)				
AF		WO 97/06880	02-27-1997	Zenon Environmental Inc.		
		JP 07-289860	11-07-1995	Toray Ind Inc.		✓
		English language abstract of JP 07-289860				Machine
		JP 07-136471	05-30-1995	Toray Ind Inc.		✓
		English language abstract of JP 07-136471				Machine
		JP 61-291007	12-20-1986	Toyobo Co Ltd		
		English language abstract of JP 61-291007				
		JP 61-293504	12-24-1986	Kurita Water Ind Ltd.		
		English language abstract of JP 61-293504				
		JP 61-167407	07-29-1986	Sumitomo Bakelite Co. Ltd.		
		English language abstract of JP 61-167407				
		JP 61-242607	10-28-1986	Asahi Cchem Ind Co Ltd.		
		English language abstract of JP 61-242607				
		WO 93/02779	02-18-1993	Mertec Limited		


Examiner Signature		Date Considered	11/16/04
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3 Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). 4 For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. 5 Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. 6 Applicant is to place a check mark here if English language Translation is attached.

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Sheet	2	of	2
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